



Palisades Spent Fuel Pool Storage Interim Criticality Analysis

September 16, 2008

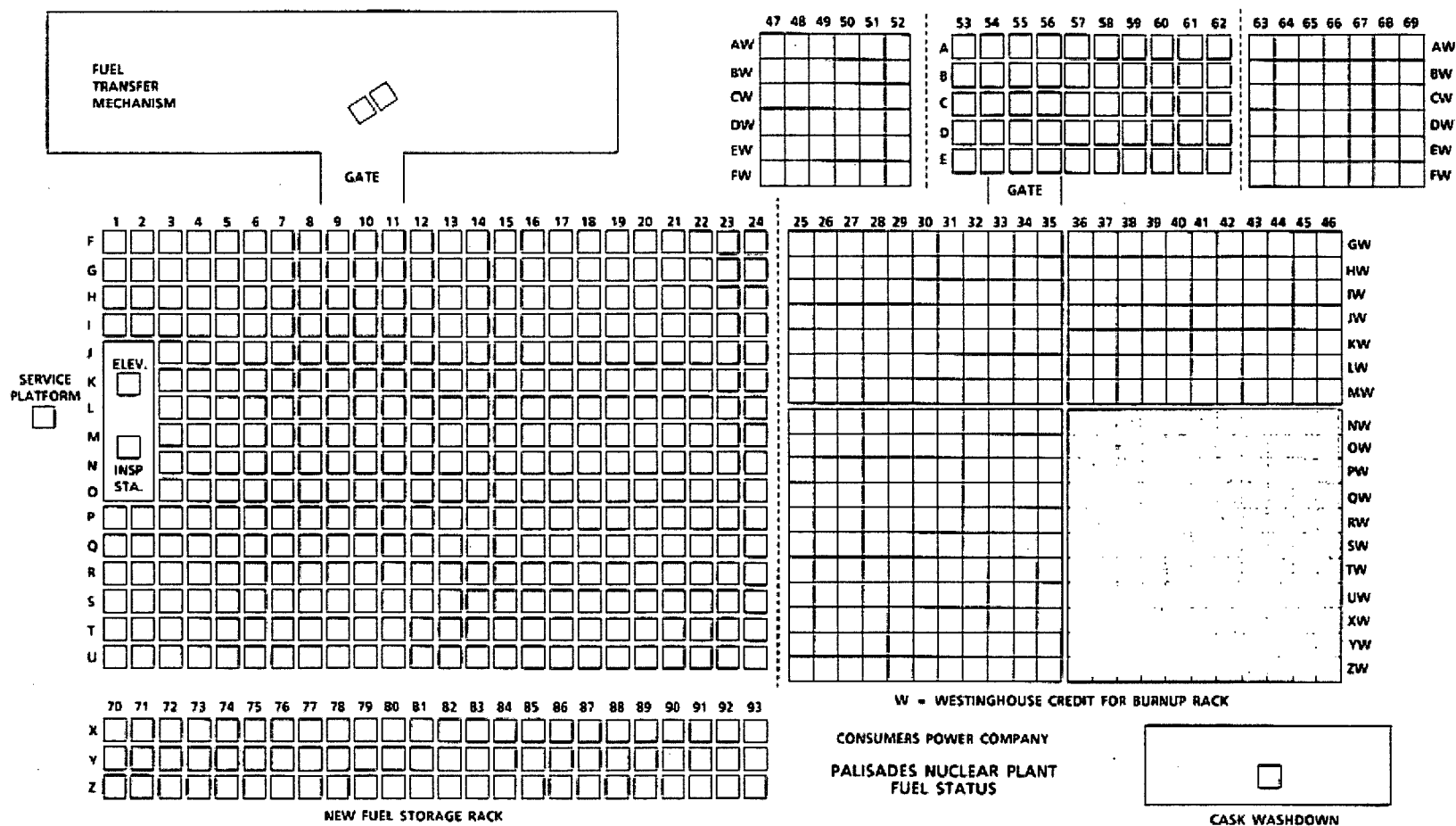
Purpose

- Proposed plan for Palisades Spent Fuel Pool (SFP) Storage Interim Criticality Analysis
- Technical Specification (TS) changes and timing

Palisades SFP Design

- The Palisades SFP is currently divided into Region I and Region II.
- Region I is an NUS rack that contains Carborundum® neutron absorber plates.
- Region II is a Westinghouse rack that contains Boraflex®, but the Boraflex® is no longer credited. Fuel assembly storage is restricted in accordance with Palisades Technical Specifications.
- Soluble boron is already credited in the Region II criticality analysis.

Palisades SFP Layout



NOTE: NUS (Region I) racks on left

Westinghouse (Region II) racks on right

North Tilt Pit - Top Right (5x10 rack in center is a NUS Rack)

Palisades SFP Loading

- The Carborundum® in Region I is degraded.
 - In August 2008 Region I SFP racks were considered operable but degraded as allowed by GL 91-18.
 - Commitment made to submit a License Amendment Request and obtain approval before addition of positive reactivity to Region I.

Project Overview

- Obtain a new, “simple” criticality analysis and License Amendment Request (LAR) to support fuel receipt in February 2009 and for the 1R20 outage fuel shuffle.
- This is the “Phase 1” or “interim” analysis that will utilize a checkerboard or other pattern utilizing open cells and soluble boron credit to facilitate a LAR review and approval.
- A “Phase 2” or “Long Term” analysis will be submitted in 2009 to support the fall of 2010 refueling outage.

Interim Analysis & Assumptions

- AREVA (Lynchburg, VA) has been awarded a contract to perform the analysis.
- Only the criticality analysis of Region I will be revised
 - Applicable to Region I racks with no credit for Carborundum®
 - Use of open cells as means of reactivity control
 - Reduced enrichment (to the maximum used at Palisades)
 - Fuel burnup (depletion) and decay time are not credited for reactivity holddown
 - Credit for soluble boron in accordance with 10CFR50.68 (limit credit to 850 ppm to match that used in Region II)
 - Margin is retained relative to the acceptance criteria, versus analysis results at the limits.
- TH, Dose, Structural and Handling Accidents are not changed

Palisades Proposed Licensing Amendment

- License amendment for Region I reflects new assumptions including the following:
 - Storage restrictions for SFP where appropriate.
 - Credit soluble Boron in the SFP water but not the Carborundum
 - Continued compliance with 10 CFR 50.68(b).
 - Fuel enrichment decreased from 4.95 wt.% CZAEE to 4.54 wt% CZAEE.
 - No credit for fuel burnup or decay time.

Palisades Submittal Plans

- LAR submitted by November 26, 2008 with NRC approval by February 13, 2009.
- Advantage
 - Allows for a fuel shuffle during the next refueling outage at Palisades, in March 2009.
- Disadvantage
 - NRC review time is short.
 - Full core offload capability is not expected to be able to be maintained.